REMARKS / ARGUMENTS

Applicant appreciates the Examiner providing a copy of the Notice of Non-Compliant Amendment by fax on April 23, 2008 and giving the Applicant an opportunity to correct and respond.

Status of Claims

Claims 1-4, 7, 9-13 and 16-22 are pending in the application. Claims 1-4, 7-13 and 16-22 stand rejected. Applicant has amended Claims 1, 2, 7, 9, 10, 12, and 18 - 20, cancelled Claims 4 and 13 leaving Claims 1-3, 7, 9-12, and 16-22 for consideration upon entry of the present Amendment.

Applicant respectfully submits that the rejections under 35 U.S.C. §112, second paragraph and 35 U.S.C. §103(a) have been traversed, that no new matter has been entered, and that the application is in condition for allowance.

Rejections Under 35 U.S.C. §112, Second Paragraph

Claims 1-4, 7, 9-13, 16 and 18-22 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicant regards as the invention.

Regarding Claims 1, 10, 19 and 20, the Examiner comments that Applicant should clarify how an even number of normally consecutive QRS complexes are selected, how the longest and shortest intervals are discarded and how the middle interval is selected.

Claims 1,10, 19 and 20 stand rejected under 35 U.S.C. §112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. MPEP §2172.01. The Examiner found that the following step was omitted: How is the signal being validated and how is the underlying cardiac rhythm being analyzed.

By this Amendment, Applicant has amended Claims 1, 10, 19 and 20 to clarify and distinctly claim the subject matter of the invention. Claims 1, 10, 19 and 20 now recite:

". . . analyzing underlying cardiac rhythm based on said detected QRS complexes, wherein said analyzing underlying cardiac rhythm includes a determination of a suitable heart rate based on the number of premature ventricular beats;

selecting an even number N of consecutive QRS complexes, if said cardiac rhythm is determined to be suitable rate based on said number of premature ventricular beats; . . ."

Antecedent basis for these amendments may be found in Paragraph [0034] for example. Applicant respectfully submits that the steps of Claims 1, 10, 19 and 20, as amended, are now sufficiently interrelated and there is no omission or gap between the steps. [MPEP 2772.01]. Namely, the determination based on the number of premature ventricular beats allows the cardiac rhythm to be analyzed and thus the selection of consecutive QRS complexes.

With respect to the discarding of the longest and shortest intervals, applicant respectfully submits that the claim must be read in light of the specification and the interpretation of one of ordinary skill in the art. *Ex parte Wu*, 10 USPQ 2d 2031, 2033 (B.P.A.I 1989). Applicant respectfully submits that the selection of a longest interval and a shortest interval from a set of data is within the possession on one of ordinary skill in the art. Applicant respectfully submits that the Examiner stated this in the office action with respect to the 35 U.S.C. § 103(a) rejection. [paper 20071213, page 4].

With respect to the selection of the middle interval, Claims 1, 10, 19, 20 have been amended to include the limitation that:

". . . selecting a middle value interval of said N-1 intervals . . ."

Antecedent basis for this amendment may be found in Paragraph [0036] for example. Applicant respectfully submits that the selection of a middle value from a set of data is within the possession of one of ordinary skill in the art.

In view of the foregoing, Applicant respectfully submits that the claimed subject matter is described in such a manner that reasonably conveys to one skilled in the relevant art, that there are no missing essential steps, and that the inventors, at the time the application was filed, had possession of the claimed invention. Accordingly, Applicant respectfully requests the Examiner to reconsider and withdraw this rejection, which Applicant considers to be traversed.

Rejections Under 35 U.S.C. §103(a)

Claims 1-4, 9-13 and 18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kaufman et al. (U.S. Patent Publication No. 2003/0016852, hereinafter Kaufman) in view of Vick et al. (U.S. Patent No. 4,115,864, hereinafter Vick), Arand et al. (U.S. Patent No. 5,628,326, hereinafter Arand) and Griffin et al. (U.S. Patent Publication No. 2005/0137484, hereinafter Griffin).

With respect to the rejection on Claims 1-4 and 9 in view of Kaufman in light of Vick, Arand, and Griffin, Applicant submits that this rejection is moot in light of the amendments. Applicant further submits that the obviousness of the claims is best discussed with regards to Lutz below. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Claims 13 and 19-22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kaufman in view of Vick, Arand and Griffin in view of Lutz (U.S. Patent No. 5,832,051, hereinafter Lutz).

Regarding Claim 13, the Examiner acknowledges that Kaufman does not disclose that the step for analyzing underlying cardiac rhythm includes determination of a suitable heart rate and looks to Lutz to cure this deficiency.

Regarding Claim 19-22, the Examiner acknowledges that Kaufman does not disclose the step for associating ECG waveform data with image data generated by an imaging system using a data synchronization scheme and looks to Lutz to cure this deficiency.

Applicant traverses these rejections for the following reasons.

By this Amendment, Applicant has amended Claims 1, 10, 19 and 20 to include the following limitations from Claims 4, and 13:

". . . wherein said analyzing underlying cardiac rhythm includes determination of a suitable heart rate based on the number of premature ventricular beats; . . ."

In the office action, the Examiner admitted that Kaufman, Vick, Arand and Griffin do not disclose analyzing an underlying cardiac rhythm including the determination of a suitable heart rate. [paper 20071213, page 5]. The Examiner looks to Lutz to cure this deficiency and further states that Lutz discloses the analyzing of an underlying cardiac rhythm including the data synchronization scheme. Applicant respectfully disagrees.

Applicant finds that Lutz discloses the determination of a patients cardiac rhythm to set the rotation time of the X-ray beam around the patient. [Lutz, abstract, Col. 5, Lines 22-26]. The timing of the cardiac rhythm is important to Lutz to allow radiological exposures of various cardiac phases of the patient. [Lutz, abstract]. Independent Claims 1, 10, 19 and 20 in contrast, determine a suitable cardiac rhythm to determine if it is appropriate for the imaging scanner. [present Application, Paragraph [0034]]. Applicant respectfully submits that in order for a prima facie case of obviousness to be proper, the reference must teach or suggest each and every element of the instant invention in such a manner as to perform as the claimed invention performs. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988).

Applicant submits that the combination of Lutz with Kaufman, Vick, Arand and Griffin would not operate in the same manner as independent Claims 1, 10, 19 and 20 since Lutz does not disclose, teach or suggest the analysis of a cardiac rhythm that includes determination of a suitable heart rate based on the number of premature ventricular beats. Applicant further submits that at best the proposed combination with Lutz would result in an x-ray apparatus of Kaufman where the x-ray transmitter portion rotates about the patient in a manner where the rotation is synchronized with the patients cardiac rhythm. Accordingly, Applicant respectfully submits that Claims 1, 10, 19 and 20 are not obvious in view of Kaufman in light of Vick, Arand, Griffin and Lutz. Reconsideration and withdrawal of this rejection is respectfully requested.

With respect to dependent Claims 2-3, 7, 9, 11-12, 16-18, and 21-22, which depend directly or indirectly from independent Claims 1, 10, 19 and 20, also incorporate all of the limitations of their parent claims. Applicant submits that for at least the same reasons as set forth above with respect to independent Claims 1, 10, 19 and 20, that Claims 2-3, 7, 9, 11-12, 16-18, and 21-22 are not obvious in view of Kaufman in light of Vick, Arand , Griffin and Lutz. Reconsideration and withdrawal of this rejection is respectfully requested.

In view of the foregoing, Applicant submits that the References fail to teach or suggest each and every element of the claimed invention and are therefore wholly inadequate in their teaching of the claimed invention as a whole, fail to motivate one skilled in the art to do what the patent Applicant has done, fail to recognize a problem recognized and solved only by the present invention, fail to offer any reasonable expectation of success in combining the References to perform as the claimed invention performs, fail to teach a modification to prior art that does not render the prior art being modified unsatisfactory for its intended purpose, and discloses a substantially different invention from the claimed invention, and therefore cannot properly be used to establish a prima facie case of obviousness. Accordingly, Applicant respectfully requests

reconsideration and withdrawal of all rejections under 35 U.S.C. §103(a), which Applicant considers to be traversed.

In light of the foregoing remarks and amendments, Applicant respectfully submits that the proposed amendments and arguments comply with 37 C.F.R. §1.116, place the claims in a condition for allowance, and should therefore be entered, and with their entry that the Examiner's rejections under 35 U.S.C. §112, second paragraph, 35 U.S.C. §103(a) have been traversed. Applicant respectfully submits that the application is now in condition for allowance. Such action is therefore respectfully requested.

If a communication with Applicant's Attorneys would assist in advancing this case to allowance, the Examiner is cordially invited to contact the undersigned so that any such issues may be promptly resolved.

The Commissioner is hereby authorized to charge any additional fees that may be required for this amendment, or credit any overpayment, to Deposit Account No. 06-1130.

In the event that an extension of time is required, or may be required in addition to that requested in a petition for extension of time, the Commissioner is requested to grant a petition for that extension of time that is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to the above-identified Deposit Account.

Respectfully submitted,

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